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Atmospheric Chemistry and Physics Discussions

Interactive comment on "New spectral functions of the near-ground albedo derived from aircraft diffraction spectrometer observations" *by* C. A. Varotsos et al.

Anonymous Referee #1

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Review of the manuscript entitled: "New spectral functions of the near-ground albedo derived from aircraft diffraction spectrometer observations" C.A. Varotsos, I.N. Melnikova, A.P. Cracknell, C. Tzanis, and A.V. Vasilyev.

General comment: This article addresses a worthy subject to be investigated and could be considered within the scope of Atmos. Chem. Phys. The subject is "the dependence of the near-ground albedo as a function of wavelength in the entire solar spectrum for diïňĂerent surfaces (sand, water, snow) and in diïňĂerent conditions (clear or cloudy sky)". The paper presents very interesting and useful results and conclusions. For example, the spectral albedo functions of diïňĂerent surfaces obtained may contribute to

the optimization of future remote sensing sensors for various applications. Additionally, the results could be useful for increasing accuracy and reducing uncertainties in the radiative forcing for the investigation of the remotely-sensed atmospheric constituents and parameters, for example. On the other hand, the presentation of the results is clear and the number and quality of the illustrations is enough. The discussion is also clear and very well structured, studying albedo as a function of the studied surface and the wavelength in the different regions. The conclusions are also clear and sufficiently supported by the results obtained. References are also enough and effectively selected indicating a good knowledge of the subject by the authors. It also indicates a good review carried out by them. Therefore, I recommend it for publication in Atmos. Chem. Phys. after correcting a few minor details that have been found during the reviewing process.

Specific comments:

- Along the manuscript the authors write several times the pronoun "We", "we found. . .", "we present. . ." etc. In my opinion, it would be recommended to use, in all cases, the impersonal form, in order to improve formality of the paper: "It was found", "is presented", etc.

- Figure 1 (caption): It is written "Green line: Black sea, Lake Ladoga (lines: pink, cyan, blue, deep pink),. . ." it would be better to keep the same structure, i.e. colour line: place. In this case it would be "Green line: Black sea, (pink, cyan, blue, deep pink) lines: Lake Ladoga, . . ."

- Figure 4: It is hard to assign each second-order polynomial ïňĄt to the corresponding curve. In order to improve it, the connection of each equation with the corresponding curve by means of arrows is recommended.

- Section 3.3.1.: It is written "This is due to the fact the snow state. . .". It would be better to write "This is due to the fact that the snow state. . .".

- Section 3.4.: A comma is missing in the sentence “As mentioned in the Introduction surface albedo plays a crucial role. . .”. It would be better “As mentioned in the Introduction, surface albedo plays a crucial role. . .”

- Section 3.4.: The same typo in an identical sentence can be found two paragraphs below. A comma is missing in the sentence “As mentioned in the Introduction surface albedo plays a crucial role. . .”. It would be better “As mentioned in the Introduction, surface albedo plays a crucial role. . .”

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 16211, 2013.